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RESEARCH PROJECTS



0000011614

BAR CODE

92-031

ACCESSION NUMBER

J. L. Myracle - A2

ISSUED TO



PHILIP MORRIS USA
RESEARCH CENTER
RICHMOND, VIRGINIA

Fourth Quarter, 1992

Period Covered

December 2, 1992

Date Issued

2021326024

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**DOMESTIC PRODUCT
DEV. AND SUPPORT**

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**PRODUCT
DEVELOPMENT**

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PROGRAM NUMBER : 920101-01
 PROGRAM NAME : Product Development
 PROGRAM COORD. : R. P. Heretick/C. B. Altizer
 WRITTEN BY : C. B. Altizer/J. L. Spruill
 PERIOD COVERED : Fourth Quarter, 1992

Coordinator Summary: Domestic Product Development programs to date are in line with commitments forecasted and added for 1992. Consumer Research was completed for Marlboro Extra and Express programs with the Express program being given the priority for 1993. Product was completed for the Virginia Slims King Size program in menthol and non-menthol versions, available for forecasted consumer research. Merit Family programs (3mg, 6mg, Ultima Menthol) are on target either with consumer testing completed or in progress. Cigarette specifications were completed for six packings of the Bucks product.

I. Objective: B&H King Size Line Extension

Design and develop a B&H King Size Menthol and Regular, Full Flavor and Lights.

A. Strategy V: Launch

1. **Results:** Region 5 launch of the four packings will occur after installation of additional packers. Two additional packers will be installed in late April, followed by an additional two in late July. Launch in Region 5 is expected sometime after April. A sampling plan was instituted to monitor the subjective integrity of the line extension. Product continues to be subjectively acceptable.
2. **Plans:** Continue subjective monitoring of product and provide assistance in qualification of new packers.

II. Objective: Parliament Lights Menthol

A. Strategy III: Modify current design and develop prototypes for 11mg + 13mg tar product acceptable to full flavor menthol smokers.

1. **Results:** A final factory trial is planned to make both an 11mg and 13mg product. Cigarette specifications will be completed for both tars.
2. **Plans:** Complete final factory trial. Product becomes shelf item until required for introduction.

III. Objective: Merit Ultima (Regular and Menthol)

Support Merit Ultima Launch

A. Strategy III: Design and development of KS/100 menthol line extensions.

1. **Results:** Second generation of models were completed and submitted for analytical testing. Subjective evaluations will begin after 14 days equilibration. Three replicate

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POL's each of King Size (04044-04046) and (06021-06023) have been requested and targeted for shipment the week of 1/11/93 and 1/18/93, respectively. All POL's will use 100% synthetic menthol, an alcohol reduced aftercut and are mentholated via foil and filler.

2. **Plans:** Complete cigarette specifications and factory trials during first trimester, 1993.

B. Strategy IV: Design and develop 120mm line extension (regular and menthol).

1. **Results:** Lab Max prototypes (23.0 circ x 119.5mm) were completed using four blends: Merit Ultima (50% JET), #298 (38% JET), Merit Ultra Lights and B&H filler. All models used a CA filter and were targeted at 5mg tar. Analytical and subjective evaluations were completed.
2. **Plans:** No further activity forecasted.

IV. Objective: 3mg Merit (Superlights)

Design and develop a 3mg product with the subjective attributes of a 6mg cigarette.

A. Strategy II: Design and develop prototypes using new and/or Novel components.

1. **Results:** Prototypes were completed and evaluated using CA, PM Web and Tela Web filters for Blends #298 and 387, using two ventilation targets to optimize the TRTD. The CA filter models were found to be the most subjectively acceptable.
2. **Plans:** No further activity forecasted.

B. Strategy III: Evaluate Prototypes

1. **Results:** The conclusions from POL 02088 (Blend 298/CA filter) positioned this prototype higher in strength but not as well liked as Blend 387 with a CA filter (POL 02080). The second replicate of Blend 387/CA filter (02081) was in the field 11/2.
2. **Plans:** Submit requests appropriate for third replicate test of Blend 387/CA filter for shipment the week of 2/1/93.

C. Strategy V: Non-NET Prototype Refinements (Back-up position)

1. **Results:** Additional models are being requested to improve the smoking characteristics of Blend 298 (38% JET). Models will be made and evaluated targeting a firm 3mg tar thus reducing the tpp vs. the POL and increasing the burley spray application to smooth mainstream taste.
2. **Plans:** Evaluate new samples for POL testing week of 2/1/93.

V. Objective: 6mg Merit

Design and develop a 6mg product with the subjective attributes of an 8mg cigarette.

A. Strategy V: Consumer Testing

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1. **Results:** Prototypes were evaluated and a model selected for baseline consumer testing. POL 02096 will incorporate Marlboro Ultra Lights blend, Merit Ultima bright casing and Marlboro Ultra Lights aftercut. This test has been made and submitted for analytical testing. Ship date is week of 11/30.
2. **Plans:** Final approval for POL 02096.

VI. Objective: Virginia Slims King Size

Design and develop King Size Menthol and Non-Menthol line extensions.

A. Strategy I: Design and develop 24.0 circumference prototypes at 11mg and 13mg tar.

1. **Results:** Line extension has been designated as 83mm length and 24.0 circumference. Designs and prototypes were completed and evaluated for the medium-type product (13mg/1.4 tpp). POL testing was requested.
2. **Plans:** No further activity forecasted.

B. Strategy II: Consumer Testing

1. **Results:** Two replicate POL's have been scheduled for shipment in November and December: POL 02089 and 02090, respectively. Each is targeted at 13mg tar with a 1.4 tpp. POL 02089 was completed and submitted for analytical testing.
Product is available for qualitative testing by Market Research when required. Samples include 11mg/1.3 tpp lights regular and menthol product using white tipping and 13mg/1.4 tpp medium regular and menthol product using cork tipping.
2. **Plans:** Monitor production of second replicate POL test (02090) and submit for analytical/subjective evaluations.

C. Strategy III: Design and develop cigarette specifications for menthol companions at 11mg and 13mg tar.

1. **Results:** Designs were completed and prototypes made for lights and medium product targeting 0.07 menthol per puff. Blend used was MB4B using sprayed menthol. Filters used 0X, 1X and 3X menthol PZ for varying menthol levels.
2. **Plans:** Complete subjective evaluations and appropriate Semiworks requests for first trimester baseline consumer testing.

VII. Objective: Marlboro Extra

Develop KS 80/83mm full flavor/lights products at an increased circumference.

A. Strategy II: Address issues necessary to accommodate R&D and production concerns.

1. **Results:** Cigarette making equipment is being installed in Semiworks. Plans will be implemented addressing cigarette parameters (CPI, firmness, filler OV, etc.).
2. **Plans:** Complete study of issues addressing product. Write cigarette specifications and conclude program as a shelf item.

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B. Strategy IV: Consumer Research

1. **Results:** Forty cigarettes each of full flavor and lights product was supplied for Focus Group testing in October. The planned "Single Stick" Ad Pack test was cancelled.
2. **Plans:** No further activity forecasted.

VIII. Objective: Slims 100's

Design and develop a generic 100mm with 23.0 circumference to compete with Misty.

A. Strategy II: Refine designs, fabricate prototypes.

1. **Results:** Models are being requested using Brica blend with Cambridge A/C, Brica blend with Bristol A/C and Brica Menthol to make full flavor and lights tar cigarettes.
2. **Plans:** Fabricate models for analytical and subjective evaluations using current Brica Blend and future Brica Blends.

IX. Objective: Bucks Line Extension

Design and develop line extensions for Bucks.

A. Strategy I: Design and develop prototypes

1. **Results:** All models were completed for analytical and subjective evaluations. Preliminary cigarette specifications have been completed for full flavor and lights King Size FTB, 100mm SP full flavor and lights, 100mm FTB full flavor and lights and a 70mm non-filter SP.
2. **Plans:** Issue specifications for product launch.

X. Objective: Marlboro Express

Develop a full flavor and lights line extension sensorially similar to the current Marlboro Red and Lights products.

A. Strategy IV: Ad Pack and price testing

1. **Results:** "Solid" pack product, full flavor and lights, was shipped for the pricing test. "Solid" pack product, full flavor and lights was completed for shipping for an Ad Pack, if required.
2. **Plans:** No further activity forecasted.

B. Strategy VII: Production Start-up

1. **Results:** Production equipment time line is being developed by Engineering with the first module scheduled to start up 4/23/93 in Louisville.
2. **Plans:** Provide support to all departments for production.

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XI. Objective: Consumer Testing

Generate a database of strength and liking scores for PM and competitor's products to identify new product opportunities and product/process improvements.

A. Strategy I: Routine Testing of Philip Morris and Competitor's Product

1. Results:

Number of tests completed	15
Number of tests in progress	5
Number of tests projected for 1st trimester	Final schedule not available

2. Plans: Initiate and complete projected 1st trimester testing.

B. Strategy II: Supply Product For Non-Standard POL's

1. Results:

Number of tests completed	2
Number of tests in progress	1
Number of tests projected for 1st trimester	Final schedule not available

2. Plans: Initiate and complete 1st trimester testing.

C. Strategy III: POL's For New Product Development

1. Results:

Number of tests completed	7
Number of tests in progress	2
Number of tests projected for 1st trimester	Final schedule not available

2. Plans: Initiate and complete 1st trimester testing.

D. Strategy IV: POL's For Product/Process Improvement Programs

1. Results:

Number of tests completed	7
Number of tests in progress	10
Number of tests projected for 1st trimester	Final schedule not available

2. Plans: Initiate and complete 1st trimester testing.

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XII. Objective: Marketing Program Support

To support Marketing and Marketing Research efforts in the areas of focus groups, ad packs and packaging concept tests to provide cigarette prototypes, special packings and product information necessary to access feasibility of concepts.

A. Strategy I: Provide Product As Requested

- 1. Results:** Product has been supplied for focus groups, packaging comps and visual samples for the following programs:

Marlboro Wides
Marlboro Red Express
Virginia Slims King Size

- 2. Plans:** Provide product, as required.

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**PRODUCT
TECHNOLOGY**

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PROGRAM NUMBER : 920101-02
 PROGRAM NAME : Product Technology
 PROGRAM COORD. : R. P. Heretick/C. B. Altizer
 WRITTEN BY : C. B. Altizer/J. L. Spruill
 PERIOD COVERED : Fourth Quarter, 1992

Coordinator Summary: Virginia Slims low sidestream consumer testing program was completed utilizing Ambrosia I and II technologies. The 100mm De-Nic Menthol program at ultra lights, lights and full flavor tar levels is on schedule with improved subjective models scheduled for consumer testing first trimester of 1993.

I. Objective: Project Ambrosia II

Develop a flavor agent for use in a cigarette designed to deliver a more acceptable sidestream with a non-distinct aroma.

A. Strategy III: Chemical Research

- 1. Results:** Smoking runs on the prototype CORESTA smoking machine were made for the cigarette series made with CR-2978 added to the cigarette wrapper. These smoking runs are part of a continuing experiment to determine the possible degradation of the flavor release compound. The cigarettes were smoked after they had been stored at room temperature for a period of 6-8 weeks. Mainstream and sidestream TPM pads were sent to ARD for analysis of HCA and CR-2978. No differences were observed in the deliveries of either CR-2978 or HCA after this storage. The results have been reported in a memo.

Mainstream and sidestream smoke samples from cigarettes with Aromatek 150 added to the wrapper were collected on the prototype CORESTA smoking machine and analyzed to determine the delivery of Aromatek 150 and its release compound, ethylvanillin. No Aromatek 150 was detected in either sample. The results have been reported in a memo.

A sample of CR-2571 was analyzed by pyrolysis gc/ms for G. Chan.

Samples of Aqualon AQ0514-24 and AQ0514-49, modified wood and flax pulps designed to release vanillin, were analyzed by pyrolysis gc/ms at 400°C. AQ0514-49 was also pyrolyzed at 200°C and 300°C.

- 2. Plans:** Smoking runs on the 8-port prototype CORESTA smoking machine will be run as requested in support of Project Ambrosia. Pyrolysis gc/ms analysis of flavor release agents will continue.

- 3. Contributors:** Chemical Research Division

4. References:

J. Naworal, "Pyrolysis GC/MS Analysis of Aqualon AQ0514-49 (Vanillin Release Agent)," Memo to G. Chan, October 19, 1992.

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J. Naworal, "Pyrolysis GC/MS Analysis of Aqualon AQ0514-24 and AQ0514-49 at 400°C", Memo to G. Chan, October 20, 1992.

J. Naworal, "Pyrolysis GC/MS Analysis of CR-2571 (L-Menthyl β -D-Glucopyranoside)," Memo to G. Chan, October 30, 1992.

B. Strategy IV: To establish the parameters for the commercial production of HexylC (CR-2978).

1. **Results:** A detailed evaluation of the existing development synthesis of HexylC has been completed.

A development plan has been prepared covering the work that needs to be carried out at PM and Aldrich in preparation for the commercial manufacture of HexylC.

Initial cost models for the manufacture of HexylC have been produced in order to be able to evaluate the effect of the proposed synthetic modifications on the manufacture of HexylC.

2. **Plans:** Carry out the work covered in the development plan in order to establish if the method for synthesis of HexylC can be improved and to determine a commercial method for isolation of the product.
3. **Conclusion:** Options exist for the improvement of the method of production of HexylC as well as for its isolation on a commercial scale.
4. **Contributors:** Chemical Research – Project 2520.

II. Objective: Project Ambrosia I

Develop cigarette prototypes which exhibit a vanillin-like sidestream aroma.

A. Strategy III: To develop a modified polysaccharide incorporating a covalently bound flavorant for incorporation into the wet end of the papermaking process so the flavorant will be thermally released when a cigarette is smoked.

1. **Results and Conclusions:** Aqualon has been working on producing a vanillin glycidyl ether of cellulose which is more pure than the previous two samples which they have provided. NMR and pyrolysis gc/ms analyses of the early samples indicated some oxidation of the vanillin aldehyde. An alternative synthetic scheme in which the aldehyde is protected as the propylene glycol acetal prior to reaction with cellulose is also being pursued. An initial attempt to react the blocked vanillin epoxide with cellulose has not succeeded in achieving any flavor incorporation and modified reaction conditions are being explored.
2. **Plans:** Aqualon plans to provide a purified sample of a vanillin glycidyl ether of cotton linters cellulose by early December. This material will be analyzed and phase clearance will be pursued. Aqualon will also provide a sample of the protected vanillin ether of cellulose if the reaction succeeds. Scale-up production of either material will proceed if analyses warrant.
3. **Contributors:** S. Tafur (Paper Technology), G. Chan, Y. Houminer, J. Naworal (Chemical Research), J. Wooten, (Analytical Research).

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III. Objective: Project De-Nic

Develop a family of subjectively acceptable Ultra Low, Low tar and Full Flavor menthol products from filler which, through supercritical CO₂ extraction, has a residual nicotine level of < 0.1%.

A. Strategy: Development of a Menthol family of De-Nic products at Ultra Low, Low tar and Full Flavor delivery levels.

1. **Results & Conclusions:** POL tests 06007, 06008 and 06009 were completed this quarter. Results indicate that the Full Flavor Menthol model was rated well as compared to Salem 100's, the Low tar prototype was rated lower in liking than Salem Lights and the Ultra Low tar prototype was judged to be thin. Additional prototypes were produced this quarter at 16, 11, 9, and 6mg tar at targeted tar/puffs.

Two new total blend casings were developed and evaluated in combination with two new aftercuts. One of the combinations was selected by the internal panel as offering a subjective improvement over previous prototypes.

If the results of these POL tests are judged to be acceptable, an extended smoking consumer test will be recommended.

2. **Plans:** POL tests 06017, 06018, 06019 and 06020 (De-Nic Menthol 100mm at 16, 11, 9, and 6mg tar, respectively) have been requested and are scheduled to be shipped the second week of December, 1992. These prototypes will incorporate the selected aftercut and casing system chosen by the internal panel.
3. **Contributors:** T. Gannon, B. Monahan, G. Patron (Domestic Product Development), H. Maxwell, J. Shelton (Flavor Technology).

CONSUMER RESEARCH TECHNOLOGY

IV. Objective: To collect and interpret information on consumer attitudes, lifestyles, behavior, and concept/product perceptions to determine potential R&D and PM-USA product programs and provide direction for existing programs. (Strategic Goals 1-5)

A. Strategy I: Evaluate alternative research procedures, propose and conduct pilot research followed by quantitative testing to combine consumer's concepts/features.

1. **Results:** The Consumer Needs Research pilot questionnaires from low sidestream/low odor study are being analyzed to determine the key questions to segment consumers based on behavior, attitudes, and lifestyles.
2. **Contributors:** Jan Jones (Product Evaluation Division), Page Callahan (Product Evaluation Division), Melissa Jeltima (Product Evaluation Division)

B. Strategy II: Design and critique methods for consumer evaluation of multiple concepts/prototypes within benefit themes, including social acceptability, and product attributes to communicate quality and value.

1. **Results:** A research plan has been designed to assess low smoke/low odor products, involving product placement and follow-up interviews among consumers. POLs of

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all models were completed in August. Focus groups and one-on-one interviews were completed in September. Information from these was used to revise the concepts and questionnaire used in the Large-scale Consumer Research. The large-scale study was fielded in October. Data tapes have been received and results are being analyzed.

2. **Plans:** Results from the low sidestream/low odor research will be used to pick a model(s) for Marketing Research to conduct product/concept evaluation.

A total of 80 one-on-one interviews will be conducted during December to assess the appeal of packaging attributes among soft and box smokers.

3. **Contributors:** J. Jones (Product Evaluation Division), P. Callaham (Product Evaluation Division), M. Jeltama (Product Evaluation Division), J. Tindall (Product Evaluation Division), New York Marketing Research

SENSORY RESEARCH TECHNOLOGY

- V. **Objective:** Conduct research of theoretical and applied methodological sensory research to ensure the validity, reliability and effectiveness of PM-USA's subjective testing program.

- A. **Strategy I:** Evaluate methods of streamlining data analysis/chart generation/presentation quality.

1. **Plans:** Evaluate needs on an on-going basis.

- B. **Strategy II:** Conduct competitive product testing.

1. **Results:**

Total number of tests completed	63
Number of 85mm nonmenthol tests	16
Number of 100mm nonmenthol tests	18
Number of 85mm menthol tests	14
Number of 100mm menthol tests	15

2. **Plans:** Complete fourth quarter testing.

- C. **Strategy III:** Develop and implement a searchable/retrievable POL Results Database.

1. **Results:** The framework of the POL database has been developed and is being tested for global and supplemented data. Classes have been completed to train study leaders in SQL, a language used to access the database. Raw data has been entered into the database for all existing monadic POLs.

2. **Plans:** Further work still needs to be done in the following areas: building master charts, calculating liking regression numbers, predicting strength numbers for all panels, and verifying all data entered to date.

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NEW PACKAGING CONCEPTS ADDED VALUE

VI. Objective: Provide innovative packaging designs, materials, and manual fabrication skills to support new product introductions, strategic goals as related to environmental issues, and existing brands improvement.

A. Strategy: Develop packaging that more easily degrades after use than the current packaging. Conceivably, this could be achieved by developing new adhesive systems for paper fiber and/or fiber formation into packages.

1. Results: Moulded Fiber Technology of Westbrook, Ma. has not responded to requests for materials and information. Therefore, further activities with them will be curtailed and alternative vendors will be pursued. R. Newsome identified a vendor during his attendance at Pack Expo '92 and has requested samples.

Information has been requested from Poly-Bond, Inc. to determine their capabilities in the technology of adhesive application to webs and films.

2. Plans: Continue efforts to identify a vendor who has a process for making a molded pack from paper fibers.

Continue evaluating available technologies and packaging materials for applicability to "biodegradability".

B. Strategy: Manually fabricate innovative packaging designs to support the development of new brands and improve existing brands.

1. Results: R. Newsome has continued as the R&D representative on the Engineering Packaging Innovation Team. He attended the Pack Expo '92 and KGF Worldwide Packaging Team meetings held in early November. Product Development Services personnel have prepared and evaluated various packaging materials and designs in response to Engineering and Purchasing requests. Support of new packaging designs have been provided by hand fabrication of prototypes for: unique packaging concepts and designs, Booklet Pack, Red Express, Recloseable Soft Pack, B&H Deluxe hinge lid box in a 1x10 cigarette packing configuration, and a 2x5 configuration hinge lid box for Marlboro (Korea).

An all aluminum pack design has continued to be a major effort during this quarter. A shift in emphasis has been made from drawn to folded box designs. Silk screen printed laser cut blanks have been prepared and tooling is being developed to form the box.

2. Plans: Continue to provide support in the form of mock-up fabrication, conceptualization, and participation on the Packaging Innovation Team. Provide packaging mock-ups to PED for Consumer Research testing in early December. Continue to monitor innovative packaging materials/concepts available in the literature and through trade shows and other professional contacts.

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INTERGRATED MODELLING & DATABASE MANAGEMENT

VII. Objective: Design and implement an integrated modelling and database management system for Product Development.

A. Strategy II: System Design.

1. Results: Work continues on defining the user interfaces using MicroSoft's Visual Basic as a design tool. MicroSoft's project management software is being used in Project Happen. Unless a glaring deficiency appears in this software package, it will probably become the defacto standard for Cigarette Technology.

2. Plans: Continue working on the user interface definition and continue working with CAD personnel in defining the data interfaces.

Continue to observe the information flow through Product Development and present initial user interfaces to the initial group of users.

3. Contributors: R. Heretick, C. Altizer (Domestic Product Development Group)

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EXISTING
PRODUCT SUPPORT

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PROGRAM NUMBER : 920101-03
 PROGRAM NAME : Existing Product Support
 PROGRAM COORD. : R. Cox, V. Willis, G. Yatrakis
 WRITTEN BY : Contributors
 PERIOD COVERED : Fourth Quarter, 1992

ET NET

I. Objective: To substitute and evaluate NET materials in existing brands.

A. Strategy: Evaluate the substitution of NET for DIET processed tobacco at current and increased levels.

1. **Results:** After completion of evaluations of cased Marlboro, B&H and Merit-type Semi-Work blends, Stockton Street trials were made with NET-T2690 at the increased inclusion level of 15% in B&H and Merit blends. B&H Full Flavor 100's SP (POL 05059) and Merit KS (POL 02092) cigarettes were made at Stockton Street, analyzed and released by Flavor Technology and the Richmond Panel. Results of the B&H with 15% NET (POL 05059) were acceptable while results of the Merit test are pending.
2. **Plans:** Semi-Works trials have been scheduled for evaluation of NET-3 at current and increased inclusion levels in Merit Ultra Lights, Parliament, Virginia Slims Lights and Ultra Lights, B&H Ultra Lights and Marlboro Lights prior to POL tests.
3. **Contributors:** B. Taylor, B. Peace, C. Moogalian, Process Development, Semi-Works and CTSD.

PED PRODUCT QUALITY PROJECT

Coordinator Summary: The quantitative POL study to assess the frequency at which menthol and nonmenthol panelists have detected various product defects and level of tolerance for these defects has been completed and results have been reviewed.

II. Objective: Define and measure the determinants of consumers' perceptions of quality.

A. Strategy: Conduct consumer surveys to evaluate cigarette defects with respect to their importance to consumers and consumers' awareness of them.

1. **Results:** A menthol and nonmenthol quality survey was fielded among more than 9,000 POL panelists to assess satisfaction with their current brands, frequency of detecting 42 (plus 2 menthol) defects within the past six months, and propensity to switch brands if these defects were to occur once in six months, once a month or once a week. Data from 4,000 panelists have been analyzed, and the results were reviewed in September.

Measures of incidence and importance on five qualify defects are being made using the repoll and brand update surveys.

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2. **Plans:** Quality Audit measures of defect frequencies will be compared to frequencies of consumer complaints to provide a measure of the relative importance of those defects.

Visual detection experiments have been cancelled. Evaluation of actual cigarette and packaging defects by consumers was postponed until 1993, when the need and scope of this study will be determined.

3. **Contributors:** Ennis, Gear, Jones, Callaham, Manwaring, Tindall, Ferro, LeGauffey (PED); Dorer, Pillow, Young (QA).

B. Strategy: Analyze taste/odor/stale (TOS) complaints to relate their frequencies to brand and smoker group characteristics – 2nd Quarter.

1. **Results:** Analyses of TOS complaint rates (per billion) as a function of brand delivery, brand flavor (menthol, nonmenthol) and smoker gender have been done. Analyses of the relationship between TOS and other complaint rates, demographics and other factors were completed. Investigations on the applicability of control chart procedures to complaint data have been discontinued based on a shift in priority by QA.

2. **Plans:** This project has been completed.

3. **Contributors:** Gear, Tindall.

C. Strategy: Conduct surveys of complainants about TOS and other defects – 2nd Quarter.

1. **Results:** A method has been implemented for collecting and analyzing the sensory characteristics of reported stale cigarettes and usual brand experience.
2. **Plans:** Collect data on stale complaints during 1992 and provide continuous guidance on its interpretation.
3. **Contributors:** Ennis (PED); Young (QA).

PACKAGING STUDIES

III. Objective: Qualify a supplier of waterborne printing ink.

- A. **Strategy:** Examine waterborne inks from our supplier/partner, ICI/Thiele-Engdahl, for analytical and subjective acceptability.

1. **Results:** Several new ink vehicles were submitted by ICI/Thiele-Engdahl. Labels printed with red waterborne inks were analytically acceptable; however, subjectively these samples were not. Saratoga 120's cartons were printed using waterborne inks and were found to be analytically and subjectively acceptable.
2. **Plans:** A pallet of Saratoga cartons will be printed and evaluated for machineability and print quality. Purchasing Technical Services will coordinate this. Plans for 1993 will be discussed with ICI/Thiele-Engdahl in mid-November.

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3. **Contributors:** C. Kroustalis, B. Mait, Solvent Panel, G. Patskan, Purchasing Technical Services.

B. **Strategy:** Develop an analytical procedure for the quantitation of components used in waterborne ink systems.

1. **Results:** No significant progress was made on method development due to personnel changes in the Analytical Research Division.

2. **Plans:** Determine where the method development responsibility for this should be. Initiate and complete method development; then transfer this procedure to Quality Assurance and our vendors.

IV. **Objective:** Qualify suppliers of offset printing for use on promotional items and low volume brands.

A. **Strategy:** Evaluate the feasibility of using low odor UV printing ink.

1. **Results:** The project plan designed by R&D and Purchasing Technical Services is being implemented. Sun Chemical, our supplier of low odor UV ink, is providing laboratory samples of ink for this project plan. AGI, a printer in Chicago, has agreed to work with Philip Morris and Sun Chemical to produce acceptable printed material.

2. **Plans:** Laboratory samples printed with low odor UV ink will be evaluated analytically and subjectively. This testing will be completed in mid-December. A planning meeting is scheduled in mid-November with our supplier and vendor to discuss 1993 plans.

3. **Contributors:** C. Kroustalis, B. Mait, Solvent Panel, Purchasing Technical Services, Analytical Research Division.

B. **Strategy:** Develop an analytical procedure to determine components present in offset printing ink.

1. **Results:** Preliminary qualitative identification of components has been made using Purge and Trap GC/MS. Results indicate that the lacquers, as well as the inks, used on the printed material contribute to the residual volatile components.

2. **Plans:** Quantitate purge and trap results. Correlate these findings with subjective evaluations.

3. **Contributors:** C. Keene, G. Vilcins.

V. **Objective:** Qualify packaging material for new brands, line extensions and promotional items.

A. **Strategy:** Evaluate new packaging material for acceptability.

1. **Results:** The following items were qualified for use:

Cambridge 20/40 Sleeve
Virginia Slims 20/40 Sleeve
Bucks T-shirt Promotion
Marlboro Denim Insert
Alpine T-shirt Promotion
Marlboro Express Full Flavor & Lights Metallic Ink Packaging
B&H Special Kings U-Band

2. **Plans:** Continue to evaluate on an as-needed basis.

3. **Contributors:** B. Mait, R. Dunaway, Solvent Panel, T. Cravotta, R. Hale, Purchasing Technical Services.

B. **Strategy:** Evaluate and qualify packaging material for analytical and subjective acceptability.

1. **Results:** Analytical evaluations were made on 137 samples. There were 120 subjective smokings on 76 packaging issues (9/16 – 11/11/92).

2. **Plans:** Continue to evaluate these items on an as-needed basis.

3. **Contributors:** B. Mait, R. Dunaway, T. Cravotta, R. Hale, Solvent Panel, Purchasing Technical Services.

VI. **Objective:** Revise and update specification levels of the gravure solvent mixtures used to print packaging material.

A. **Strategy:** Determine the threshold levels of various printing solvents. Correlate the threshold levels to specification levels for these same solvents.

1. **Results:** Organoleptic threshold of the third new gravure solvent system (System III) has been determined (40% of individual solvent threshold level) and correlated to the standard PM solvent headspace analysis. The individual organoleptic threshold of methanol has been established and analytically correlated to 292 ug/pack.

Methanol's threshold in solvent blends has been evaluated and the threshold level for blends has been narrowed to the ranges shown below:

Current System	between 9 & 74 ug/pack
Blend #I	between 6 & 88 ug/pack
Blend II	between 8 & 57 ug/pack
Blend III	between 13 & 81 ug/pack

2. **Plans:** Continue panel testing until the threshold for Methanol is determined in all four blends. Issue appropriate threshold specifications to QA (target completion date is 12/30/92).

3. **Contributors:** B. Mait, R. Dunaway, Solvent Panel, T. Cravotta, R. Hale, Purchasing Technical Services.

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B. Strategy: Determine the impact of the improved sealant layer developed by Hoechst for the high barrier OPP films, on pack seal efficiency. Determine the impact of the Hoechst film on the product's ability to maintain targeted moisture levels in the desert and jungle rooms. Perform a preliminary subjective test to qualify the Hoechst High Barrier film.

- 1. Results:** Storage, analytical, physical and subjective testing of the Hoechst 120 gauge high barrier film has been discontinued. Subjective differences were seen between the control Mobil 80 gauge film and the Hoechst 120 gauge film. Differences were also detected in blocking between the two films. Data is currently being analyzed to correlate OV's, IMPS, flavor transfer and subjectives for both the control and test film. Additional development is under investigation on the Hoechst film.
- 2. Plans:** Issue a completion report for the storage and subjective testing on the Hoechst 120 gauge film.
- 3. Conclusion:** A working knowledge of our current vendors films (overwraps), components, physical characteristics, construction and subjective impact is needed.
- 4. Contributors:** Pack Film Task Force, B. Rech (QE), P. Thomas, D. Wittkamp, K. Deane, V. Willis, C. Scott, J. Gear (PED) and Flavor Technology Panel.

VII. Objective: Determine if products with Flavorseal packaging maintain their physical, chemical and subjective properties longer than products with polypropylene overwrap.

A. Strategy: Compare the 80 gauge standard polypropylene overwrap with the metallized film overwrap. Determine the impact on OV retention, flavor retention and subjectives.

- 1. Results:** Storage testing of the metallized film is in its fourth month. The testing includes environmental conditioning, analytical, physical, microbial and subjective monitoring. The Merit nonmenthol testing has been decreased to ambient conditions only. The Merit Menthol testing continues under the following conditions: Ambient, Cold and Warehouse. There is a significant difference in the OV retention of the products with the metallized overwrap. The metallized overwrap maintains the OV significantly better than the control 80 gauge polypropylene currently used. Some differences in subjectives have been noted with time. Data is currently being analyzed to correlate OV's, IMPS, flavor transfer and subjectives.
- 2. Plans:** Complete testing. Correlate data. Make recommendation for modifications and repeat testing with modified films and new blends.
- 3. Contributors:** Pack Film Task Force, B. Rech (QE), P. Thomas, D. Wittkamp, K. Deane, V. Willis, C. Scott, J. Gear (PED) and Semi-Works Panel.

FACTORY MODERNIZATION SUPPORT

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VIII. Objective: To provide support for the subjective qualification of factory primary modernization programs.

- A. Strategy:** Qualify new P&S Dryer at the Manufacturing Center.
- 1. Results:** P&S Dryer #2 has been qualified for use at single rate.
 - 2. Plans:** Qualify P&S Dryer #2 at double rate in November, 1992. Dryer #1 is scheduled for removal during December shutdown. Qualification of the new Dryer #1 is scheduled for the first quarter of 1993.
 - 3. Contributors:** D. Spruill, W. Bell, J. Sherron, R. Rainey, R. Bowman and J. Sowers.
- B. Strategy:** Quality DIET stem reclamation from the VT separator.
- 1. Results:** R&D testing of reclaimed stems added back to former DIET blend at various percentages and moistures showed subjective differences.
 - 2. Plans:** Repeat tests with BLDET formula.
 - 3. Contributors:** D. Spruill, W. Bell, J. Sherron, C. Wood and P. Aument.
- C. Strategy:** Qualify new tanks for alcohol-based flavors in the MC primary.
- 1. Results:** Alcohol-based flavor tanks at MC have been qualified.
 - 2. Plans:** No further plans for this quarter.
 - 3. Contributors:** D. Spruill, W. Bell, J. Sherron, D. Sims and J. Sowers.
- D. Strategy:** Qualify new aftercut cylinders at MC.
- 1. Plans:** Install two new aftercut cylinders during December, 1992 shutdown. Qualification trials are scheduled for the first quarter of 1993.
 - 2. Contributors:** D. Spruill, W. Bell, J. Sherron, J. Sowers and R. Bowman.
- E. Strategy:** Qualify DCC/Destoner at the Manufacturing Center.
- 1. Plans:** Installation of DCC is scheduled to begin during December, 1992 shutdown. Qualification trials are scheduled for second quarter of 1993.
 - 2. Contributors:** D. Spruill, W. Bell, J. Sherron, J. Sowers and R. Bowman.
- IX. Objective:** Evaluate and modify Semi-Works small scale to achieve parity with large scale.
- A. Strategy:** Establish operating procedures and processing parameters for the new equipment by examining individual processing steps to minimize the differences between large scale and small scale.
- 1. Results:** Models in Marlboro Lights configuration were produced to evaluate the burley processing. The control was processed in large scale, Test #1 burley was dried in small scale (tray dryer), Test #2 burley was dried in small scale (rotary dryer). Both of the test models were different compared to the large-scale processed sample.

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2. **Plans:** Continue to investigate the individual processing steps.
 3. **Recommendation:** Investigate processing steps in small scale starting at the aftercut cylinder and work backward in the processing to decrease variables.
 4. **Contributors:** W. Bell, S. Skalak, V. Willis, M. Tallman, D. Self, M. White, V. Smith, C. Scott and T. Skidmore.
- B. Strategy:** Compare small scale and large scale Semi-Works production with the factory production for Marlboro Standard X.
1. **Results:** Three models without overtopping were produced for evaluation by the Marlboro Standardization panel. The models were as follows: (1) Large scale Semi-Works Marlboro control; (2) Marlboro with cased burley pulled from large scale and remainder of processing completed in small scale; and (3) Marlboro processed in large scale except for ET, ES and aftercut which were applied in small scale. The model processed in small scale with cased burley pulled from large scale was found to be different compared to the large scale Semi-Works control. No significant differences were detected between the large scale control and the model with ET, ES and aftercut being applied in the small scale.
 2. **Plans:** Repeat the testing with the ET, ES and aftercut being applied in the small scale vs. large scale control for confirmation.
 3. **Contributors:** W. Bell, S. Skalak, V. Willis, M. Tallman, D. Self, M. White, V. Smith and T. Skidmore.

TOBACCO MATERIALS AND RECLAMATION

- X. Objective:** Subjectively evaluate returned goods and/or out-of-specification filler to determine the most cost effective disposition.
- A. Strategy:** Determine most cost effective disposition (ripper, expanded, sheet products) or filler while maintaining subjective integrity.
1. **Results:** Samples have been evaluated as submitted and recommendation made.
 2. **Plans:** Continue evaluations as products become available.
 3. **Contributors:** Flavor Technology.

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PROCESSING PLANT SUPPORT

Coordinator Summary: Individual and combined lines of RCB at the BL Plant were evaluated and qualified to produce at 350 fpm to minimize overtime operations and reductions in inventories. BLT (liquid flavors, unwashed Burley stems and reduced humectants) was qualified through replicated POL tests. Implementation of the BLT formulation at the BL Plant (RCBT) has been completed. Implementation of reduced humectants at Park 500 was initiated for RLTC with changes in RLB scheduled for January, 1993. Projects in support of the Flavor Center have been completed for qualification of alternate vendors while design of an automated cooked flavor process is proceeding.

XI. Objective: To increase capacity by increasing line speed at the BL Plant.

A. Strategy: Conduct subjective qualification trials on each line at the BL Plant increased from 330 fpm to 350 fpm to address increased RCB requirements.

- 1. Results:** After subjective qualification of Line 1 at 350 fpm, adjustments were made to each of the other lines' dryer profiles to evaluate RCB from a shift of production. RCB from Line 2 was evaluated at 350 fpm individually and combined with Line 1 at 350 fpm and Line 3 at 330 fpm. On-site monitoring and subjective evaluations of handmade cigarettes during the trials contributed to decisions on processing. Line 3 was evaluated individually at 350 fpm similar to the other lines and in combination with Line 1 and 2 at 350 fpm. Line 1 remained at the increased line speed while the others were returned to 330 fpm during cigarette making and subjective panel testing to qualify the other lines.

After Flavor Technology and Richmond Panel evaluations in Marlboro cigarettes showed no differences, specifications were transmitted to the BL Plant to produce RCB at 350 fpm.

- 2. Plans:** Continue to support modifications to optimize capacity while maintaining subjective quality. Trials of line speed increased to 360 fpm are being planned for the first quarter of 1993.
- 3. Contributors:** B. Hoskin, J. Swain, M. McFadden, R. Smith, BL Plant, Cigarette Technology, Semi-Works, CTSD and ARD.

XII. Objective: To evaluate and qualify BLT (liquid flavors, unwashed Burley stems and reduced humectants in RCB).

A. Strategy: After individual qualification POL tests of RCB with liquid flavor and reduced humectants, these modifications will be combined with unwashed Burley stems to test BLT.

- 1. Results:** POL's 03072 and 03080 testing BLT (from duplicated production trials) in the reformulated Marlboro blend showed parity with Marlboro. Recommendations and specifications were transmitted to implement the changes. In anticipation of incorporating RCBT (BLT) as early as February, 1993, the formulation changes were implemented at the BL Plant the week of November 9. BL Plant conversion to the RCBT formulation was monitored during initial shifts.
- 2. Plans:** Continue to support modification to optimize capacity while maintaining subjective quality.
- 3. Contributors:** B. Hoskin, J. Swain, Process Development, BL Plant, Cigarette Technology, Semi-Works, CTSD and ARD.

XIII. Objective: To support cooked flavor production, qualification of alternate vendors and improved process control of the reactor at the Flavor Center.

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A. Strategy: Flavor Technology personnel will support these goals through collaborations with Operations Services, Engineering, Purchasing and Flavor Center personnel to formulate and evaluate cooked flavor with alternate materials and evaluate 75-814 from the automated reactor system.

1. Results: Flavor Center trials were completed with an alternate source of sugar (SFC-450) and combined alternate sources of sugar and amino acid (SFC-454) in cooked flavor. After analytical and subjective testing, the test flavors were each compared to the 75-814 control in Park 500 RLTC. Internal panel evaluations showed no differences in Marlboros for the RLTC tests incorporating the alternate vendor materials. Transmittals have been prepared for formulations and initial specifications.

2. Plans: Flavor Technology will support the Flavor Center implementation and refinement of specifications as required.

3. Contributors: B. Hoskin, J. Swain, Process Development, Park 500, Cigarette Technology, Semi-Works, Operations Services, Purchasing, CTSD and ARD.

SUBJECTIVE PANELS

XIV. Objective: To provide subjective evaluation of prototypes, modifications of existing brands, new brands and competitors' products.

A. Strategy: Conduct evaluation for development programs, monitoring of domestic competitive brands and any problems associated with production and/or processing plants.

1. Results: Subjective results have been issued for Part III of the Glycerin/Triacetin Study. The subjective evaluation of the Benson & Hedges Regular and Menthol alternative film storage study have been completed. The Semi-Works panel continues to evaluate the Merit and Merit Menthol alternative film storage study samples. To date, the Merit nonmenthol evaluations through week 12 and the menthol through week 8 have been completed.

Subjective evaluations continue on the Cast Leaf Panel. A total of 25 panels have been completed to date this quarter.

A total of 12 POL's have been screened before and after overtipping for subjective release.

An additional 72 panels were conducted this reporting period for development programs.

Subjective monitoring of new brand startup include the following (new brand startup includes products that are new to a specific factory):

Cabarrus
Marlboro KS and LS FTB and SP
Marlboro Lights KS and LS
Merit Ultima

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Benson & Hedges Regular 100 mm SP
Benson & Hedges Menthol 100 mm SP
Basic Ultra Lights 85 mm SP
L&M Milds FTB
Philip Morris Lights 85 mm FTB
Philip Morris Super Lights SP and FTB
Cambridge Full Flavor 85 mm and 100 mm SP
Cambridge Ultra Lights 85 mm and 100 mm SP
Cambridge Lights 85 mm and 100 mm SP
Bristol Ultra Lights 85 mm and 100 mm SP
Bristol Lights 85 mm and 100 mm SP
Bristol Full Flavor 85 mm and 100 mm SP
Louisville
Marlboro KS
Marlboro Lights KS and FTB
Benson & Hedges Menthol
Virginia Slims Lights Menthol
Virginia Slims Lights Regular
Manufacturing Center
Marlboro KS and LS
Marlboro Lights KS and FTB
Stockton Street
Benson & Hedges Special Kings Regular Pocket Pack
Benson & Hedges Special Kings Menthol Pocket Pack
Parliament Lights 85 mm and 100 mm SP
Philip Morris Lights
Bronson 85 mm Unfiltered SP
Marlboro LS
Marlboro Lights FTB
Subjective characterization of 55 domestic brands:
 32 premium brands
 23 generic brands

2. **Plans:** Continue to provide subjective support for the evaluation of development programs, monitoring of domestic competitive brands and any problems associated with production and/or processing plants. Complete the subjective testing with alternate films.
3. **Contributors:** K. Deane, J. Gear, Flavor Technology Domestic Panel, Film Panel and Semi-Works Panel.

XV. Objective: To provide training, maintenance and support to auxiliary panels (e.g., Richmond, Semi-Works, Filter and Paper and Cast Leaf Panel).

- A. **Strategy:** Train auxiliary panels to screen development prototypes and to judge acceptability of final products.

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1. **Results:** The Semi-Works panel is evaluating the Merit alternate film storage study and products from the Small Scale modernization program. The Filter and Paper Panels are evaluating filter prototypes for descriptions and profiles to define how different filters affect the subjective profile of the final product. The Cast Leaf Panel continues to evaluate prototypes of BL, NBL and Cast Leaf.
2. **Plans:** To begin training for the Richmond Panel when time permits. Continue training of all panels on new blends, products and modifications of products as time permits.
3. **Contributors:** K. Deane, C. Scott, Flavor Technology personnel, Semi-Works, Cast Leaf and Filter and Paper Panel members.

XVI. Objective: To provide subjective evaluation of development prototypes, modifications of existing brands and export (PM and competitors' brands).

A. Strategy: Continue to monitor existing brands and provide subjective evaluations for prototype development. Further training will be conducted to standardize panels.

1. **Results:** The International panel training continues. Subjective characterization of twenty-two international brands were completed this quarter. Subjective monitoring of new brand start-up include the following (new brand start-up includes products that are new to a specific factory):

Lark Milds FTB and KS
 Merit Lights 85 mm (14's) SP
 Marlboro GCC 85 mm SP
 Parliament 85 mm and 100 mm SP
 Parliament Lights 85 mm and 100 mm SP
 Lark Milds and FF 85 mm and FTB
 Marlboro Lights for Hong Kong
 Marlboro Lights for Japan
 Philip Morris Super Lights 85 mm SP
 Philip Morris Lights 85 mm SP
 Marlboro 10's Korea
 Bond Street KS SP
 Marlboro KS FTB (Kanazawa)
 Marlboro Lights KS FTB (Kanazawa)
 Philip Morris Super Lights 6's for Japan
 Merit 1 mg FTB for GCC.

2. **Plans:** Continue subjective support for developmental programs, new products development, storage issues and competitors' profiles. Continue training for the International panel and the recruitment of new panelists.

3. **Contributors:** K. Deane and the International Panel.

MARLBORO STANDARDIZATION

XVII. Objective: To identify and reduce the source of variation in PM brands between production and processing facilities.

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A. Strategy: Conduct factory pickups and a standard run to monitor the quality of Marlboro by subjective and analytical testing.

1. Results: Marlboro Standardization Run X was conducted the week of August 10 at all factory locations and Semi-Works. All locations produced Marlboro KS and LS. The final report on subjectives and analyses has been issued. Factory trials were conducted in Cabarrus, Louisville and the Manufacturing Center to monitor processing of the BLDET blend in early October. The implementation of the BLDET blend on November 1 was monitored by Flavor Technology, Leaf Blending, Operations Services and Cigarette Technology personnel. Products with the new blend are being subjectively monitored by the Flavor Technology panel and the Richmond Panel.

The Marlboro Standardization panel also evaluated prototypes from the Semi-Works on large-scale vs. small-scale processing for the qualifications of the small-scale modifications. The results have been issued.

2. Plans: Continue subjective monitoring of products with the new blend as they are being produced in the different locations. A final pickup for 1992 will be requested from the factories during the month of November with results to be issued the first quarter, 1993. POL testing of the 13% BLDET in Marlboro KS SP production products will begin in December. Initiate the production trials of 14% BLDET prototypes the first quarter of 1993.

3. Contributors: K. Deane, D. Rockwell, Marlboro Standardization Panel and the factory panels.

XVIII. Objective: Provide training, maintenance and support to factory panels which could possibly identify and reduce sources of taste/odor/stale customer complaints.

A. Strategy: Training for factory panels and quarterly panel leader workshops will be conducted. The factory panels will monitor their daily production which could identify and possibly reduce taste/odor/stale customer complaints. Factory panels will also evaluate factory pickups and standard runs for monitoring purposes.

1. Results: Due to changes within the factories, training has been suspended. New panel leaders and members for all three shifts are being recruited in Cabarrus, Manufacturing Center and Stockton Street. Louisville is currently running both the regular and menthol panels on "A" shift.

XIX. Objective: Subjectively test externally (POL testing) Marlboro products from the different locations.

A. Strategy: POL testing (monadic evaluation) of scheduled factory pickups and cigarettes produced from Standard Run X will aid in defining Marlboro control regions and develop new statistical methods.

1. Results: POL testing from Standard Run X were within defined regions for Winston SP and Marlboro Box smokers. Marlboro SP smokers rated all POL's within the defined regions, except for the Louisville SP model.

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2. **Plans:** Plans include POL testing of production of Marlboro SP and FTB through 1993.

3. **Contributor:** A. Smith.

BRAND MAINTENANCE

XX. Objective: To assist Technical Services personnel in making recommendations for corrective actions to keep all current brands within delivery targets.

A. Strategy: Recommended changes.

1. **Plans:** Recommended changes as needed.

2. **Contributor:** W. Claflin.

B. Strategy: Teach and train.

1. **Results:** Ongoing.

2. **Contributor:** W. Claflin.

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**FLAVOR
TECHNOLOGY**

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PROGRAM NUMBER : 920101-04
 PROGRAM NAME : Domestic Product Development & Support – Flavor Technology
 PROGRAM COORD. : R. H. Cox/C. S. Kroustalis
 WRITTEN BY : Contributors
 PERIOD COVERED : Fourth Quarter, 1992

PROJECT GRAIN

Coordinator Summary: This program is on schedule. Implementation of alcohol-free BTC and 5% alcohol reduction in all applicable aftercuts will begin in February, 1993. Successful factory trials were conducted in Australia with participation from R&D and IOS.

I. Objective: Incremental alcohol reduction in aftercut (AC).

A. Strategy: Conduct factory trials with reduced alcohol levels in AC in conjunction with alcohol-free Burley Top Casing (BTC).

1. **Results:** A successful Merit KS trial with 61% total alcohol reduction was conducted at Cabarrus. Subjective parity was achieved.
2. **Plans:** Continue with planned incremental alcohol reduction evaluations and support implementation as needed.
3. **Contributor:** S. Ruziak.

B. Strategy: Reduce/rearrange PG in flavor system in combination with alcohol-free BTC and AC alcohol reduction.

1. **Results:** Models for POL 03044 with 67% total alcohol and 25% PG reductions were prepared and released for shipment. The POL test will close on November 20, 1992.
2. **Plans:** Since the initial alcohol reduction is scheduled for First Quarter 1993 factory implementation, additional factory trials will be conducted after the initial implementation. Factory trials will be conducted during the Second Quarter 1993 with 52% total alcohol and 25% PG reductions. If POL results are acceptable, factory trials will be conducted with 67% total alcohol and 25% PG reductions during Third Quarter 1993. Implementation will be supported on an as-needed basis.

C. Strategy: Remove all alcohol from AC's in Australian brands to conform with government flash point requirements.

1. **Results:** During October, eleven Australian factory trials were successfully conducted on the Marlboro, Alpine, Star and Phoenix flavor systems. Sonolation, reduced applications and solvent replacement were used to prepare the AC's for the trials. Cigarettes were produced for analytical and subjective evaluations.
2. **Plans:** Analytically and subjectively evaluate cigarettes from each trial. Select the best models and run additional trials as needed. Offer support for implementation.

3. **Contributor:** S. Ruziak and H. Maxwell.

HUMECTANT REDUCTION

Coordinator Summary: Implementation of reduced humectants in domestic reconstituted tobaccos is scheduled for February, 1993.

ALTERNATE HUMECTANTS

- II. Objective:** Produce reconstituted tobacco materials with alternate humectants for cost reduction and defensive purposes.

- A. Strategy:** Develop and evaluate alternate humectants replacing PG and glycerin in PM brands.

1. **Results:** No activities planned during this period.
2. **Plans:** POL testing will be made with Processing Plants-produced reconstituted materials and freshly prepared expanded tobacco. These materials will be produced after the Thanksgiving shutdown to assure the absence of humectants and normal preservatives from feedstocks.

3. **Contributors:** J. Swain, S. Ruziak, B. Hoskin and B. Taylor.

MARLBORO RI

- III. Objective:** Develop a Marlboro flavor system containing fewer than 40 listed components which support the subjective character in Marlboro cigarettes.

- A. Strategy:** Develop new reduced-ingredient flavor system and subjectively evaluate blend modifications.

1. **Results:** The remake (POL 3043) of Marlboro RI cigarettes with modified flavors, NET-3, RLL, IS and blended strips is scheduled to close on November 18, 1992. The duplicate (POL 3045) of Marlboro RI with flavors compounded from fresh materials, DIET (special cased), RLL, IS and blended strips fell within the Marlboro control limits. Park 500 trials of RLL are scheduled after the Thanksgiving shutdown to ensure the absence of humectants and flavors from normal feedstocks.
2. **Plans:** Repeat POL testing with modified flavors and/or blend, if warranted.
3. **Contributors:** B. Taylor, L. Vinson, J. Swain, L. Wilkinson, Semi-Works, CTSD and ARD.

DISCOUNT RI

Coordinator Summary: No activities planned for this period.

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REVISIONS

IV. Objectives: Reduce ingredients from PM Direct Materials to meet PM standards, reduce and simplify ingredients sources and assist the Flavor Center with evaluations of quality and flavor issues.

A. Strategy: Subjectively evaluate revisions and first shipment samples from vendors where ingredients have been removed and determine acceptability.

1. Results: All revisions for 1992 have been completed.

2. Plans: First shipment samples of revised flavors will be evaluated as they become available.

3. Contributors: J. Pflueger, D. Williams and C. Comes.

B. Strategy: Identify alternate vendors for current Direct Materials and evaluate submissions for approval.

1. Results: Eleven alternate vendor flavors, submitted by Technical Services, were subjectively evaluated. Seven were approved for use.

2. Plans: Alternate vendor samples will be subjectively evaluated as needed.

3. Contributors: J. Pflueger, G. Nixon, C. Comes and P. Andrews.

C. Strategy: Reduce flavors and flavor components to meet PM standards and reduce the number of sole source ingredients.

1. Results: Evaluations of twenty-one Direct Materials flavors from one supplier have been completed. Recommendations have been made for their removal from PM's Direct Materials list. Formulations have been written for all concentrates and AC's affected. Formulation transmittals and changes will be implemented during 1993 for inventory reasons. A revised Merit flavor concentrate will be tested externally (POL 02097) during December, 1992. Three Direct materials components were removed as requested by the Regulatory group. These flavors were evaluated and replaced with new AC formulations which were transmitted to Technical Services.

2. Plans: Evaluations and transmittals will continue as requested by Technical Services.

3. Contributors: J. Pflueger, J. Johnson and D. Williams.

D. Strategy: Assist the Flavor Center with subjective evaluations on flavor quality related issues.

1. Results: Six Direct Materials samples were subjectively evaluated against controls and were approved.

2. Plans: Continue with subjective evaluations relative to flavor quality issues as needed.

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3. Contributors: J. Pflueger, P. Andrews and W. Thomas.

PROJECT LEVO

V. Objective: Develop synthetic menthol products to decrease PM's dependence on natural menthol.

A. Strategy: Develop and evaluate synthetic menthol flavor systems replacing natural menthol.

1. Results: Prototypes with synthetic menthol replacing natural menthol were POL tested during this period. Marlboro Menthol (POL 04030) results indicated no significant rating differences among Marlboro Menthol and Newport smokers on liking, strength and menthol presentation. Salem smokers rated this prototype significantly higher on strength and menthol while Kool smokers rated it lower on liking. Merit KS Menthol (POL 04031) was rated similar to Merit Menthol on liking, strength and menthol presentation by Merit and Newport Lights menthol smokers.

2. Plans: B&H KS-SP Menthol, Run #1 (POL 04041) prototypes are scheduled to be shipped on November 16, 1992. B&H KS-SP Menthol, Run #2 (POL 04042) prototypes are scheduled to be shipped on December 14, 1992. Recommendations for synthetic menthol conversions will be made after successful completion of the last POL's.

3. Contributors: J. Shelton and M. White.

VI. Objective: Remove exotic flavors from MPZ in all menthol products while maintaining subjective integrity.

A. Strategy: Develop prototypes without exotic flavors and evaluate against controls.

1. Results: B&H 100's Menthol and Merit KS Menthol prototypes were produced in the Semi-Works and were evaluated internally. There were no significant differences between control and test cigarettes. However, subjective trends indicated that the test cigarettes were cleaner, sweeter, slightly mintier, with increased menthol response.

2. Plans: Make recommendation to remove the exotic flavors or perform external testing, if warranted.

3. Contributors: J. Shelton and M. White.

NATURAL GLYCERIN-BASED TRIACETIN

VII. Objective: To qualify natural glycerin-based triacetin as filter plasticizer.

A. Strategy: Prepare cigarette models with natural glycerin-based triacetin for subjective evaluation and comparison with current plasticizers.

1. Results: Cigarette prototypes were made at 6 and 8% (w/w) levels of triacetin. The tobacco rods were from the same lot of filler. Filter plasticizers included: natural

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glycerin-based triacetin from Celanese and Unichema, synthetic glycerin-based triacetin (Dow) and Eastman's Estrobond α (20:80 natural:synthetic). Internal subjective evaluations at the 6% level showed no significant differences from controls (synthetic and Estrobond α). Only Unichema's natural glycerin-based triacetin indicated borderline subjective difference at the 8% level vs. control.

2. **Plans:** Remake prototypes with Celanese natural glycerin-based triacetin and Estrobond α to confirm the above results. If warranted, perform external testing (POL) with natural glycerin-based triacetin prior to making recommendation for use.
3. **Contributors:** K. Lam, A. Finley, Semi-Works, FTD Panel and CTSD.

COOKED FLAVOR REPLACEMENT

VIII. Objective: To replace cooked flavor for RLTC due to possible regulatory changes.

A. Strategy: Develop, evaluate and test alternate flavor in RLTC.

1. **Results:** Two test flavors have been developed as cooked flavor substitutes in Pilot Plant RLTC. Marlboro-type models of control flavor (Run #2261) and the two test flavors in RLTC (Run #'s 2262 and 2263) were subjectively evaluated. Internal panel results indicated subjective differences.
2. **Plans:** Further flavor development is in progress to achieve subjective parity.
3. **Contributors:** J. Swain, B. Taylor, K. Deane, N. Jackson and R. Uhl.

BURLEY SPRAY COMPONENTS

Coordinator Summary: Issues with several Burley Spray components are being identified and defined. New Primary Process requirements have also affected the development of specifications. As a result, Burley Spray and components specifications development has been expanded to include the current system, NPP, licorice replacement and casings for generic products.

IX. Objective: Develop current Burley Spray processing specifications for factory primaries. Investigate potential licorice substitutes and consolidate generic products casing systems.

A. Strategy: Evaluate reduced holding temperature for current Burley Spray.

1. **Results:** No activities planned until casing needs are better defined.

B. Strategy: Consolidate the Cambridge/Bristol casing system.

1. **Results:** Consolidation was completed and implemented as the Brica system.
2. **Plans:** Evaluate the replacement of sucrose with isosweet in Brica Burley Spray by the end of 1992.
3. **Contributors:** W. Bell, D. Spruill and J. Sherron.

C. Strategy: Remove licorice and replace Baker's chocolate in current Burley Spray.

- 1. Results:** Marlboro-type models without licorice and with Baker's chocolate replacement were evaluated internally against controls. No significant differences were noted between control and test models. POL's 03078 and 03085 with licorice removal (100 and 50%, respectively) are in the field. Results are expected in December, 1992.
- 2. Plans:** No further work is planned for chocolate replacement. If warranted, additional external testing will be made with licorice replacement(s).
- 3. Contributors:** W. Bell, D. Spruill, J. Sherron, K. Parrish and N. Jackson.

D. Strategy: Analytically fractionate block licorice for subjective evaluation and possible development of a licorice substitute.

- 1. Results:** Isolated fractions of block licorice (mixtures of phenolic glycosides and alycones have been submitted for subjective evaluations. Evaluations are in progress.
- 2. Plans:** Complete fractions subjective evaluations and further fractionate those which show promise.
- 3. Contributors:** B. Demian and W. Bell.

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**INTERNATIONAL
PRODUCT DEV.**

PROGRAM NUMBER : 920103
PROGRAM NAME : International Product Development
PROGRAM COORD. : J. N. Smith and A. H. Confer
WRITTEN BY : A. Confer, J. Smith, R. Slagle, J. Hickie, R. Lambert, D. Sealey,
 B. Tierney, V. Graff and J. Easley
PERIOD COVERED : Fourth Quarter, 1992

Coordinator Summary: During this reporting period our product improvement work focused on Marlboro, with emphasis on Oriental inclusion. Product development work focused on Marlboro Lights and Lights Menthol.

Consumer panels were proposed in Brazil and Malaysia. The first test in Malaysia is to be fielded February 1, 1993.

Project Amethyst (standardization of Marlboro casing/flavor system) was approved by PME management on October 27, 1992. Implementation is scheduled for April 1, 1993.

I. Objective: Contribute to the attainment of Strategic Goal 1 by supporting the existing products of Affiliates and Licensees.

A. Strategy:

Corporate Product Improvement – Design changes that improve/standardize corporate products. Assist with consumer testing and implementation.

1. Results:

Marlboro

Costa Rica: Costa Rica implemented a tipping paper change on November 15, 1992. Paper code 12-002-A with perforation RTD of 18cm \pm 3cm with approximately 13% dilution will be used on Marlboro until additional tipping paper trials are completed.

Mexico: A team of IOS and Leaf personnel has completed the factory-to-factory variation evaluations and a report issued with recommendations.

Venezuela: Consumer testing of prototypes containing 8% Oriental and no carbon in the filter is in progress. 300 Belmont smokers and 300 Marlboro smokers are being used in the test to determine product acceptability by both groups.

Panama: Marlboro Oriental blend has been changed from 2% TIB, 2% TIK and 2% GMU to 3% TIB and 3% TIK. Change has been approved by Richmond.

Guatemala: 12% imported Turkish has been substituted for the 15% Guatemalan Oriental in Marlboro and approved by Richmond.

Guatemala: Marlboro Lights Menthol casings/flavor system has been changed to USA system to standardize the Marlboro family in Guatemala.

Philippines: Marlboro control vs. test (new blend and different A/C (without menthol)) have been submitted to the Richmond Panel for subjective evaluation.

Argentina: Prototypes for corporate brands, (L&M, Chesterfield, B&H, Parliament) have been produced and submitted for C.I. analysis. Prototypes utilize the current blends with substitute licorice.

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Indonesia: Anticipated government importation changes have necessitated a project to use local inclusion in Marlboro and Marlboro Lights.

L&M

Panama: L&M Oriental blend has been changed from 2% TIB, 2% TIK and 2% GMU to 3% TIB and 3% TIK.

2. Plans:

Marlboro

Costa Rica: Trials using three additional tipping papers will be conducted in Costa Rica to optimize cigarette deliveries and construction.

Mexico: Marlboro factory trials with US sourced ingredients is scheduled for 1st Quarter 1993.

Venezuela: Consumer test results are expected by December 1, 1992.

Panama: Marlboro Oriental project is complete.

Guatemala: Marlboro Oriental project is complete.

Guatemala: Marlboro Lights Menthol standardization is complete.

Philippines: Upon subjective approval, the change will be implemented in the 1st Quarter, 1993.

Argentina: Upon completion of C.I. analysis and subjective evaluation, the timetable for change will be decided.

Indonesia: Local tobaccos are being shipped to PM USA for prototype trials 2nd Quarter, 1992.

L&M

Panama: L&M Oriental project is complete.

II. Objective: Contribute to the attainment of Strategic Goal 2 by developing products for Affiliates and Licensees.

A. Strategy:

Corporate Product Development: Develop corporate products according to PM USA guidelines.

1. Results:

Marlboro

Dominican Republic: The Marlboro Lights Menthol prototype has been approved by Richmond.

Mexico: Marlboro Lights Menthol prototypes have been remade with current and modified blend. Prototypes were subjectively evaluated in Richmond.

Indonesia: Marlboro Lights KS prototypes produced and approved subjectively by the Richmond Panel.

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Malaysia: Marlboro Lights launched October, 1992.

Malaysia: Marlboro Menthol prototypes produced using RJR mentholated foil vs. PM USA mentholated foil to be evaluated subjectively by the Richmond Panel.

Virginia Slims Menthol

Philippines: Awaiting results of the concept test performed 4th Quarter, 1992.

2. Plans:

Marlboro

Dominican Republic: Marlboro Lights Menthol will be launched 1st Quarter, 1993, completing the project.

Mexico: Prototype with current blend was approved, completing the project.

Indonesia: Product to be launched December, 1992.

Malaysia: Subjectively evaluate Marlboro Menthol prototype produced at RJR as a brand to compete against Salem.

Coordinator Summary: The export production standardization study is now complete. The results were presented to the OMC, and consolidation was accomplished 11/1/92.

Total conversion to the PMCC carbon is complete for Lark. Further machinability trials (60 Drums) are planned for December to evaluate the PM specification coconut carbon on Parliament. Conversion to this material is scheduled to be complete by March 1993.

In addition to Lark Milds KS SP, now Lark Milds KS FTB and Lark FF FTB are successfully utilizing the KC porous heatseal combining wrap. Conversion of all Lark brands to this material will be complete by December 1992.

The Merit Lights KS in Korea was produced starting in July, 1992. This product utilizes the Sausalito blend in conjunction with filters sourced from Intertaba, Italy. Optimization efforts are underway to improve taste response on this product.

Factory trials were conducted for Project 41 in Cabarrus with carbon PCC filters supplied by American Filtrona. Production of this new brand for Japan began 11/23/92. The Next brand will be test marketed in Osaka, Japan.

Concerning the Marlboro licensee production by Japan Tobacco, the factory location transfer began in September. The DIET trials were conducted in November.

Lark KS and Lark 100's tar reduction to 13mg from 14mg is scheduled for December, 1992.

III. Objective: Provide support to operations with respect to existing export products in the areas of quality, cost/productivity, capacity and environmental compliance.

A. Strategy: Product Optimization – An attempt to consolidate tobacco cutfiller OV specifications by determining the need for tropical OV and flavor formulations.

1. Results: Export Product Standardization

Recommendations were made to eliminate tropical formulations with the Operations Management Council; and approval was given. Specifications were transmitted

10/15/92 to consolidate all tropical, Marlboro Tropical A/C, and Merit/PM GCC specifications to standard flavor/OV formulations. The change was implemented 11/1/92. Operations Management in Asia and EEMA have been briefed as to the consolidation.

2. **Plans:** Products with the consolidated flavor/OV formulations will be monitored, and potential follow-up testing in the affected regions is being planned.
 3. **Conclusions:** Test results have demonstrated that tropical specifications do not significantly contribute to product integrity, and have now been eliminated.
 4. **Contributors:** Graff, Tierney, Chambers, QA, QE, IOS.
- B. **Strategy:** Filter Optimization – Changes to existing filtration mechanisms for the purpose of reduction of product variability, cost reduction, consolidation of material specifications and productivity improvement.

Carbon Consolidation to non-impregnated SCCW and PM specification coconut based carbon.

Qualification of a porous combining wrap for Lark cavity filters.

Parliament family carbon filter optimization

1. Results:

CARBON CONSOLIDATION

Coconut Based

Multifilter KS, Va. Slims Lts. Japan and Lark Deluxe Milds have all been converted from MF2C carbon to PICA RC328. Danchi consumer testing of Parliament 100mm has shown no significant difference between control MF2C carbon and Calgon supplied PM specification at 20X70 mesh size. POL testing of MF2C and Calgon PM Specification has been initiated for this brand to determine U.S. consumer response to the proposed specification change. POL results have been received indicating no difference between PM specification carbon versus the control Parliament 100's.

Trials were conducted in November at Stockton Street to ensure no manufacturing problems exist in use of the Calgon PM spec. carbon. Pending subjective and analytical approval, inventory depletion will begin of MF2C carbon.

Coal Based

Coal based SCCW carbon, specified in Lark cavity filters, was being evaluated without iron and zinc impregnation, in order to align specifications for a potential consolidation to one carbon specification, and to achieve an estimated \$800,000 annual cost reduction. Danchi consumer testing has demonstrated no significant difference between control and non-impregnated SCCW carbon. Specifications were issued June, 1992 and depletion of SCCW carbon was completed in July, 1992.

A long term agreement to purchase PMCC carbon, if agreed to, would result in approximately \$2 million in annual savings.

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POROUS COMBINING WRAP

Use of the KC porous combining wrap was expanded to the Lark KS FTB and Lark Milds KS FTB in August, 1992. Production was monitored and all product was approved and released for commercial use.

PARLIAMENT CHARCOAL FILTER MODIFICATIONS

With installation of 250 watt lasers and new inner filter design, the 8mg tar target was achieved. Parliament Lights KS FTB (Japan) was produced at Stockton Street in August, 1992.

2. Plans:**CARBON CONSOLIDATION****Coal Based**

Upon depletion of existing SCCW inventory, 100% conversion to PMCC coal based carbon was completed in July, 1992.

Savings realized on this conversion will be determined by PM's commitment to purchase this carbon in the future.

Coconut Based

Inventories of MF2C carbon are being held to a minimum in order for a quick and orderly change to PM specification coconut carbon to be completed by March, 1993.

POROUS COMBINING WRAP

Remaining Lark brands to be converted are Lark Super Lights and all Lark 100 packagings. Total conversion to porous heatseal should be complete by March, 1993.

PARLIAMENT CHARCOAL FILTER MODIFICATIONS

Factory trials will be conducted to further expand use of the new inner filter for all Parliament brands. The Korean Parliament Lights KS products will also be consolidated to the Japanese design.

3. Conclusions:**Carbon Consolidation**

After consolidation to one coconut base carbon at PM specification and removal of impregnants from SCCW, further consolidation to one carbon on all cavity and dual acetate filters can be considered. Base material pricing and future availability will be considered in the consolidation efforts.

2021326068**Porous Combining Wrap**

The Kimberly-Clark material has performed exceedingly well in filter and cigarette quality, ventilation variability reduction and mean ventilation augmentation.

Parliament Charcoal Filter Modifications

Recommendations will include the usage of the 2.7/35,000 (FT-777) carbon filter, on all Parliament brands, the 250 watt laser ventilation system, and/or the use of perforated combining wrap on the Lights KS products.

4. **Contributors:** Lambert, Sealey, Finley, Chambers, Laslie, Manufacturing Services, QA, QE, Engineering, Manufacturing, Environmental Services.
- C. **Strategy:** Tar Delivery Reduction – In response to a decrease in sales weighted tar averages in both the Japanese and Korean markets, several brands are slated for tar reductions.
- Lark FF KS and 100's reductions from 14mg TIOJ tar to 13mg TIOJ tar.
- L&M Milds and PM Lights Japan reduction from 11.0mg to 10.0mg TIOJ tar and PMSL Japan reduction from 8.0mg to 6.0mg TIOJ tar.
- Parliament Lights KS SP and Box Korea reduction from 9.0mg to 8.0mg FTC tar.

1. Results:

Lark Family Tar Reduction

Lark KS and 100's full flavor will take a tar reduction in December, 1992 from 14mg to 13mg.

PM Lights Tar Reduction

The tar reduction from 11.0mg to 10.0mg TIOJ tar was completed in April. Filter length was increased to 27mm in September.

PM Super Lights Tar Reduction

A request was made to reduce PM Super Lights tar to 6.0mg TIOJ tar. These reductions required a filter length increase from 21mm to 27mm to achieve the optimal product, and the change was implemented in September.

AFC was qualified as a source of filters for PMSL, L&M Milds and PM Lights and is currently sourcing commercial quantities.

L&M Milds Tar Reduction

Tar reduction and filter length increase took place simultaneously in October, 1992.

2. Plans:

Lark Family Tar Reduction

Consumer testing results indicated a Lark product with the "Mount" blend in the 8mg range would be appropriate for a line extension. Based on these results, Lark Lights will be introduced in May, 1993. Lark KS and Lark 100's will take a 1mg tar reduction to 13mg.

3. Conclusions:

Lark Family Tar Reduction

The full effect of the tar reduction has not been seen. However, a new brand extension, Lark Lights, is planned for introduction in May, 1993. To match tar reductions seen in the Cabin family, Lark KS and 100's have taken a 1mg reduction to 13mg.

PM Lights and PM Super Lights Tar Reduction

The PM family is being repositioned via tar reduction, to become more competitive with the growing Kent family in Japan.

Filter length changes occurred in September for PM Lights and for PMSL.

4. **Contributors:** Lambert, Sealey, Parrish, Jackson, Hoskin, Chambers, Manufacturing Services, Purchasing, Production Planning, QA, LMCP, Engineering, QE, Manufacturing.

- D. **Strategy:** Packaging Revisions – Track changes in packaging of export products, specifically with respect to printed deliveries and the export warning notice program.

1. **Results:**

Export Warning Notice Program

A random rotation of the four U.S. warning notices will be added to 184 export packagings, which currently do not have local health warnings on the pack. Conversion will occur upon depletion of existing packaging materials to minimize obsolescence. Target completion of change-over is December, 1992. Artwork has been developed for 146 brands, with approximately 119 brands in production presently.

2. **Plans:**

Export Warning Notice Program

All export packagings not bearing local or U.S. warning notices will be converted to include a health warning by fourth quarter, 1992.

Printed Tar and Nicotine/Health Warning Legend Notice – Iran

Monitor production start-up tar and nicotine values to ensure that they conform to the printed legend values.

- IV. **Objective:** Support growth of international business, short term, through the launch of new commercial products and through support of affiliates and licensees.

- A. **Strategy:** Support of Marlboro licensee production by JT, including monitoring of production transfer from Odawara to Kanazawa.

1. **Results:** Japan Marlboro Factory Location Change

Representatives from Export Product Development, Leaf Department and PM Asia monitored the production start-up in JT's Kanazawa factory in September, 1992. Marlboro KS and Marlboro Lights KS cigarettes were evaluated in Richmond and found to be subjectively acceptable versus Odawara production. Additional modifications were made to the primary specifications for the Kanazawa Marlboro production. These modifications were monitored by representatives from the Leaf Department and Export Product Development in November, 1992. The new processing targets were achieved by the Kanazawa factory.

2. **Plans:** The transfer of commercial production from Odawara to Kanazawa will continue through the first quarter of 1993. Evaluations will continue in Richmond during the transition period. Danchi testing of Marlboro KS and Marlboro Lights KS produced in Kanazawa will begin in December, 1992.
 3. **Conclusions:** JT's modifications to the Kanazawa factory to date are acceptable and meet PM's standards for Marlboro production in Japan. Production will continue to be monitored to ensure that the product integrity and consistency is maintained. This will be confirmed via Danchi consumer testing.
 4. **Contributors:** Hickle, Brumberg, Parrish, Chambers, JT, PM Asia, PMKK.
- B. Strategy:** Marlboro Japan DIET Development Program – Evaluate DIET inclusion in Japan Marlboro family to enhance subjective and analytical performance of the products.
1. **Results:** Expansion trials of JIET-2 were conducted in Australia in September, 1992. Leaf Department provided coverage for these trials. The expanded tobacco was analytically and subjectively approved for use in the factory trials at JT's Odawara factory. Another blend incorporating JIET-2 from Australia was produced in Semiworks. Prototypes were produced with this blend and Marlboro filler from JT. The blend incorporating JIET-2 was subjectively acceptable as a replacement for the current blend. Factory trials were conducted at JT's Odawara factory in November, 1992 using the new blend formulation. Danchi test production of Marlboro and Marlboro Lights at current and reduced tar levels took place during these trials. The cigarettes are currently being evaluated in Richmond.
 2. **Plans:** Analytical and subjective evaluations will be reviewed along with consumer testing data with PM Management in order to make a recommendation regarding DIET inclusion and CPC submission. Tar reductions are planned to coincide with DIET inclusion in the Marlboro blend.
 3. **Conclusions:** Danchi testing of the DIET inclusion models will be completed early in the first quarter of 1993. Management reviews and recommendations will be completed by the end of the first quarter, 1993.
 4. **Contributors:** Hickle, Brumberg, Parrish, Roberts, Chambers, Semiworks, PM Ltd. Australia, PM Asia, PMKK, JT.
- C. Strategy:** Pan Asian Menthol – Develop a full flavor and lights menthol family to compete with Salem and Salem Lights in the Asia region.
1. **Results:** Additional prototype testing has been requested for Hong Kong by PM Asia. Australian Alpine filler has been requested for prototype production and evaluation in Richmond. Assistance has also been requested from the Leaf Department for blend development for this program.
 2. **Plans:** Prototypes will be produced in Semiworks with different menthol levels with the Australian Alpine filler when it is received. Additional prototype production is

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planned based on Leaf Department blend recommendations. HKCP Menthol testing is planned for the first quarter, 1993.

3. **Conclusions:** HKCP Menthol testing to date has not identified a prototype suitable for this program. Additional blend/flavor development will continue and prototypes will be consumer tested in Hong Kong.
 4. **Contributors:** Hickie, Parrish, Matthews, Chambers, Semiworks, Pm Asia.
- D. **Strategy:** New product launches in Japan to foster growth of PMKK and PM Licensee market share, currently over 11%.

1. **Results:**

Parliament Lights KS FTB – Launched in October, 1992.

Project 41

Development efforts have centered around designing a 1.0mg TIOJ tar product with a PCC filter, utilizing a carbon on paper core, that will achieve superiority in liking over Frontier Lights among selected low/ultra low delivery smoker groups. Development has also included the evaluation of a PCC filter utilizing a carbon on TELA paper core. Eight Danchi tests have been completed with one additional in the field, and another test to be scheduled early in the first quarter of 1993. A decision was made to proceed with the carbon on TELA PCC filter sourced from AFC. Factory trials were conducted in Cabarrus in October, and November production began 11/23/92.

Japanese Blend Optimization

Consumer testing of Blend 322 demonstrated that the blend was too high in strength for the targeted Japanese smokers.

Ultra Lights Development

Develop a 3.0mg TIOJ tar product using non-conventional, high efficiency carbon filters. Combining the efforts of the Filter Technology Group and outside vendors, a filtration system will be chosen which satisfies both analytical and subjective criteria and is commercially available. Highly flavored blends will also be developed to attract Caster/Caster Mild smokers.

Lark Ultra

A Lark family line extension is being considered to take part in the rapid growth of the below 6mg tar category in Japan.

2. **Plans:**

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Lark Super Lights KS FTB 14's

This product will be launched in January, 1993 to allow continuation of television advertisement.

Project 41

Revised launch volumes of 42.3 million will be produced for the test market launch in Osaka.

Japanese Blend Optimization

Danchi consumer testing has shown that blend 322 is too high in strength for targeted smoker groups, and blends are being developed in the Kent Milds/Special Milds direction.

Ultra Lights Development

Appropriate blends and flavors will be evaluated to determine their suitability for this project. Prototypes will be manufactured using non-conventional, high efficiency filters.

Danchi tests, in Japan, will be scheduled early 1993 for products considered as potential candidates for this project.

Lark Ultra

Brand launch is now projected in 1994. Danchi tests are underway in Japan with more scheduled in the first half of 1993.

3. Conclusions:

Project 41

The appropriate web and filter development, as well as consumer testing is in place for commercialization fourth quarter, 1992. A test market launch in Osaka, Japan is planned for February, 1993.

Japanese Blend Optimization

Blend development has taken the direction of being more in the Kent Milds family. Models are currently being evaluated internally, and will be evaluated on Danchi in 1993.

Ultra Lights Development

The Merit Ultra Lights introduction is planned for October 1993. The Philip Morris Ultra Lights introduction is planned for October 1994.

Lark Ultra

Initial plug space plug models have been screened subjectively, and candidates will be chosen for potential launch, should the priority of this program be upgraded.

Models are being tested in Japan on Danchi during November with results expected in December.

- 4. Contributors:** Lambert, Keatts, Hickie, Poindexter, Laslie, Finley, Claflin, Pflueger, Chambers, Hoskin, Parrish, Pflueger, Matthews; Newman, Tierney, Sealey, QE, JT, PMKK, PM Asia.

- E. Strategy:** GCC Product Development Visa/Congress Full Flavor (tar 12.0mg./nicotine 0.8mg.) and Visa/Congress Lights (tar 7.0-8.0mg./nicotine 0.6mg.) are being developed as a contingency to supply product for the GCC export market.

- 1. Results:** Three existing blends have been identified as potential candidates for this project.

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2. **Plans:** Flavor Technology, Leaf, and Export Product Development have evaluated each blend. Prototypes were manufactured with the approved blends and evaluated for subjective and analytical criteria by Product Development and EEMA personnel.
 3. **Conclusions:** Optimal designs will be selected as potential launch candidates, if a decision is made to export these products from the U.S.
 4. **Contributors:** Tierney, Jackson, Parrish, Hoskin, Chambers, EEMA, Cook, Heidsieck
- F. **Strategy:** New project launches in Asia, EEMA and EEC to increase market share in existing markets and establish sales in markets previously restricted to importation.

1. **Results:**

Softer Marlboro Korea

Results from PMI and SCP field testing of Marlboro FF and Lights with charcoal have been received; no product changes are planned at this time.

Marlboro Lights KS FTB for Singapore Duty Free – Launched in October, 1992.

Merit Lights KS SP Korea – Smoking evaluations were conducted in Seoul in early May, 1992 to determine the product which was launched in mid-August. Recommendations were generated and the product chosen was the Muratti Ambassador Ultra Mild. This product incorporates a triple component filter and utilizes the Sausalito blend. Twenty-eight million units were couponed with informational leaflets attached. Additional orders of 52 million have been fulfilled. Evaluations by SCP consumer testing have been initiated for early December in Seoul. Prototypes will include the Mount blend with variations of the Ring A+ casing system and aftercut. Additional SCP testing is being planned for early first quarter 1993. The current Merit Lights product will be used as the control product.

Virginia Product (Hilda) Taiwan – Additional white tipped Hilda prototypes are planned for late December, 1992 or early January 1993. PMI testing vs. Long Life Milds.

Parliament KS FTB Colombia – Launched in September.

Merit 1 KS FTB GCC – Launched in November.

Marlboro Lights 100 Singapore – Launched in October.

B&H KS FTB Russia/Ukraine – Launched in August/December.

Bond Street KS SP Russia – Launched in November.

L&M LS FTB Russia – Launched in November.

Red & White KS FTB Thailand – for launch in December.

Marlboro KS FTB 10's Korea – for launch in December.

Marlboro Lights KS FTB 10's Singapore – for launch in December.

Marlboro KS FTB 10's for Brunei, Puerto Rico, Paraguay, Singapore, Belize, and General Export – for launch in 1992.

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L&M LS FTB converted to L&M KS FTB at 14mg tar and cork tipping for export locations.

New products for CIS:

Marlboro 100 FTB

Marlboro Lights KS FTB

Marlboro KS FTB

Eve 120 FTB

Marlboro Lights Menthol KS FTB

Marlboro Menthol KS FTB

L&M KS FTB GCC – Launched in November.

Lark 100 SP Lebanon – Launched in October.

Marlboro KS FTB Cameroon – Launched in December.

Merit Lights KS FTB Colombia and Aruba – for launch in December.

2. Plans:

Softer Marlboro Korea

Additional prototypes will be produced utilizing blend and flavor modifications to reduce the impact of the 12mg Marlboro product. These models will be evaluated on the SCP Panel in the first quarter 1993. Additional models with increased filter length will also be evaluated utilizing the current Marlboro filler.

B&H Deluxe Lights 100 FTB Taiwan – for launch in January.

Marlboro 100 FTB Thailand – for launch in January.

Marlboro Medium KS SP/FTB Hong Kong – for launch 3rd Quarter, 1993.

Merit Lights KS FTB Hong Kong – for launch 3rd Quarter, 1993.

Virginia Product (Hilda) Taiwan – for launch 3rd Quarter, 1993.

3. Conclusions:

Softer Marlboro Korea

Consumer testing supports the decision to continue using CA filters for the Korean Marlboro family, rather than converting the dual carbon filters. Additional blend/flavor modifications will be evaluated in order to reduce the impact of the Marlboro FF product.

All products will be monitored during production and released upon receipt of analytical and subjective approval. Product specifications will be generated and efforts will be coordinated with the appropriate PMUSA departments, in order that all planned launch dates are realized.

- 4. Contributors:** Graff, Tierney, Easley, Sealey, Lambert, Chambers, Jackson, Parrish, Cravotta, Hoskin, Production Planning, Purchasing, Manufacturing Services, QA, PM Asia, EEMA, EEC.

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